PhD position on Ge-on-silicon waveguide circuits for spectroscopic water quality control

UGent/imec - Photonics Research Group
Technologiepark-Zwijnaarde 15, B-9052 Ghent, Belgium
http://photonics.intec.ugent.be/

We are looking for a highly motivated PhD candidate with a background in photonics and/or sensing with an interest to do research on silicon photonic integrated circuits for the spectroscopic analysis of drinking water. The project aims at realizing a germanium-on-silicon waveguide circuit that interfaces with a MidIR tunable laser and photodetector and that interacts with a water stream on top of the waveguide. The goal is to spectroscopically analyze the water sample and detect the presence of contaminants. In order to increase the sensitivity of the system, the use of coatings on the waveguides that gather the contaminants will be studied.

This work will be carried out in the context of a Horizon2020 European project. Therefore, close interaction with other partners in the project will be required: i.e. the partners that realize the tunable laser source, the photodetectors, the coatings and the end-users of the system.

We offer you the opportunity to perform cutting-edge research in a challenging, motivating environment, working within a multidisciplinary team consisting of both photonic integration, sensing and electronics experts. A willingness to tackle challenges coming from these multi-disciplinary collaborations is a must.

Application:

Apply by filling in the **application form**.

More information:

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About Photonics Research Group

The Photonics Research Group (about 85 people) is associated with IMEC, and is part of the Department of Information Technology of Ghent University. The group is headed by Prof. R. Baets and has been active in photonics device research for many years. The other professors in the group are P. Bienstman, W. Bogaerts, B. Kuyken, N. Le Thomas, G. Morthier, G. Roelkens and D. Van Thourhout. The main applications under study are silicon nanophotonics, heterogeneous integration,

optical interconnect, WDM optical communication, silicon photonics biosensors and photonic integrated circuits for biomedical applications in the near-infrared and mid-infrared wavelength range. More in particular, the silicon nanophotonics work focuses on the design and fabrication of SOI-based photonic devices using standard lithographic techniques compatible with CMOS-processing. The group is also strongly involved in the development of heterogeneous technologies, whereby the silicon photonics platform is combined with other materials such as III-V semiconductors for efficient sources, nanocrystals and polymers.

The Photonics Research Group has been coordinating the network of excellence ePIXnet and is involved in a number of EU-projects, including the FP7 projects ActPhast, PLAT4M, Cando, and Pocket and the H2020 projects TOPHIT, TeraBoard, PIX4Life, MIRPHAB and Phresco. Furthermore, the group is partner of the Center for Nano- and Biophotonics of Ghent University and the group has been awarded three ERC Independent Researcher Starting Grants and one ERC Advanced Investigator Grant.

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